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(54) Gel composition and its use in cosmetic compositions and the like

Gelzusammensetzung sowie kosmetische Anwendungsverfahren

Composition de gel et son utilisation en cosmétique

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(73) Proprietor: **L'OREAL**
75008 Paris (FR)

(72) Inventors:
- **Okamoto, Mariko**
  Tokyo 113-0021 (JP)
- **Goto, Tatsunari**
  Tokyo 143-0023 (JP)
- **Nadaud, Jean-Francois**
  Tokyo 107-0062 (JP)

(74) Representative:
Ellis-Jones, Patrick George Armine
J.A. KEMP & CO.
14 South Square
Gray's Inn
London WC1R 5JJ (GB)

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- **PATENT ABSTRACTS OF JAPAN vol. 1995, no. 08, 29 September 1995 (1995-09-29) & JP 07 112915 A (KOSE CORP), 2 May 1995 (1995-05-02)**
- **DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; FUKUI, HIROSHI ET AL: "Water- repellent, surface -treated powders and cosmetic containing them" retrieved from STN Database accession no. 129:293698 CA XP002153846 & JP 10 279826 A (SHISEIDO CO., LTD., JAPAN) 20 October 1998 (1998-10-20)**

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Description

[0001] The present invention relates to a gel composition with a novel texture, and particularly relates to a gel composition containing a relatively high amount of a pigment and/or filler, suitable for use in cosmetic compositions or external agents for the skin. Additionally, the invention relates to a cosmetic composition such as a makeup, sun care or skin care composition or an external agent for the skin formulated by using this gel composition.

[0002] While various agent formats have been used conventionally in the field of cosmetics, cream or lotion type formats lack a feeling of refreshment and tend to be sticky, and therefore are not suited to regions or seasons with high-temperature, high-humidity climates, such as the summers in Japan, and gel compositions which are generally known as gels are widely used as agent formats which have an abundant sense of refreshment.

[0003] However, although it is often desirable to add a relatively large amount of pigments and/or fillers depending on the type of cosmetic composition, if pigments and/or fillers are included in large amounts in a gel base, the pigments and/or fillers cannot be uniformly dispersed in the gel base due to problems in the compatibility, so that the appearance of the gel becomes non-uniform in the manner of the surface pattern of marble.

[0004] Additionally, while water-soluble polymers having gelling ability are used for the formulation of gels, the particle supporting net-work structure formed by the polymers become unstable after the passage of a few days to a few weeks due to an ionization effect, and the quality of the gel product is degraded overall.

[0005] Furthermore, while gum-based gels using xanthan gum as the water-soluble polymer are known, these gels tend to be sticky, and do not have a sufficient sense of refreshment.

[0006] Moreover, conventional gel compositions also have a problem in that they have less fitness to skin and are less easily applied in comparison to other formats.

[0007] Therefore, the discovery of a gel composition with exceptional pigment and/or filler dispersibility and stability, having a good appearance, providing-a sense of coolness and a sense of refreshment without stickiness, and with exceptional fitness to skin and applicability in comparison to conventional gel compositions has been desired.

[0008] Upon performing diligent research in view of the above situation, the present inventors discovered unexpectedly that it is possible to obtain an excellent gel composition which does not have the above-described problems by surface-treating the pigment and/or filler with a water-repellent oil-repellent agent and using a gelling agent which comprises a polyacrylamide-based polymer.

[0009] Accordingly, the present invention has the principal purpose of offering a gel composition which excels in pigment and/or filler dispersibility and stability, and has a good outer appearance even when containing a relatively large amount of pigments in comparison to conventional gel compositions.

[0010] Another purpose is to offer a gel composition which has a sense of coolness and a sense of refreshment without stickiness with exceptional fitness to skin and applicability.

[0011] In the present invention, the purpose is achieved by a gel composition containing a pigment and/or filler which has been surface-treated by a water-repellent oil-repellent agent, and a gelling agent comprising a polyacrylamide-based polymer.

[0012] Furthermore, another purpose of the present invention is to offer a cosmetic composition or external agent for skin using the above-described gel composition.

[0013] Moreover, a further purpose of the present invention is to provide a process for stabilizing a gel composition comprising the step of adding to the gel composition a pigment and/or filler which has been surface-treated by a water-repellent oil-repellent agent and a gelling agent comprising a polyacrylamide-based polymer.

[0014] In the context of the present invention, the term "gel" refers to what those skilled in the art understand by the term, and in general refers to a composition having a viscosity range, which is preferably in the range of about 10 scale units (317 mPa.s) to about 90 scale units (3595 mPa.s), and more preferably about 60 scale units (2336 mPa.s) to about 80 scale units (3178 mPa.s), as measured by a Contraves viscometer TV (Contraves Industrial Products Ltd.; Mobile 3; at 25°C).

[0015] The pigment and/or filler used in the gel composition of the present invention may be of any type conventionally used or usable in the fields of cosmetics and dermatology, examples of which include inorganic pigments such as extender pigments, coloring pigments and whitening pigments, organic pigments, pearlescent gloss pigments, macromolecular powders and functional pigments. More specific examples include talc, mica, kaolin, calcium carbonate, magnesium carbonate, silicic anhydride, aluminum silicate, magnesium silicate, calcium silicate, aluminum oxide, barium sulfate, red iron oxide, yellow iron oxide, black iron oxide, chrome oxide, ultramarine blue, prussian blue, carbon black, titanium oxide (amorphous or rutile type and/or anatase type crystals), zinc oxide, mica titanium, fish scale flakes, bismuth oxychloride, boron nitride, nylon powder, silk powder, tar pigments and natural pigments, these pigments being capable of being used alone or as a combination of a plurality of types.

[0016] In the context of the present invention, the term "water-repellent oil-repellent" refers to the property that the treated pigment and/or filler is resistant to water and oil. The degree of the water and oil repellency which may be used in the present invention is similar to that taken generally by those skilled in the art, and may be such that the minimum

angle of contact of a water or oil (liquid petrolatum) droplet on a water- and oil-repellent surface be preferably at least about 90° for both water and oil, and more preferably at least about 110° for oil and 120° for water.

[0017] As the water-repellent oil-repellent agent for surface-treating the above-described pigment, it is possible to use any type which has conventionally been used to confer water repellence and oil repellence to pigments, but in the present invention, fluorine compounds are especially preferable.

[0018] As fluorine compounds which are conventionally used and can act as water-repellent and oil-repellent agents, there are compounds having perfluoroalkyl groups such as perfluororalkyl phosphates, perfluoroalkyl silanes, perfluoroalkyl silazanes, polyhexafluoropropylene oxides, perfluoroalkyl-group-containing organosiloxanes, perfluoropolyethers, perfluoroalcohols, perfluoroalkylacrylate polymers, or derivates thereof.

[0019] Here, the most preferable compounds are perfluoroalkyl phosphates and perfluoroalkyl silanes, the former enabling the formulation of a gel composition with the most uniformly and stably dispersed pigments, and the latter being somewhat less capable in terms of pigment dispersibility but having exceptional compatibility with other constituents in the case of a cosmetic composition. In particular, as these types of perfluoroalkyl phosphates, there are those which are described in JP-B-5086984. Additionally, the perfluoroalkyl phosphate-diethanol amine salt marketed by Asahi Glass as AsahiGuard AG530 can be favorably used. Additionally, as perfluoroalkyl silanes, there are silane coupling agents such as LP-1T and LP-4T of Shin-Etsu Silicone.

[0020] Additionally, as water-repellent oil-repellent agents, aside from the above-described fluorine compounds, it is possible to use amino acid compounds, particularly acylated amino acids or their salts. Among these types of water-repellent oil-repellent agents, the N-mono-long chain acyl basic amino acid disclosed in JP-A-61010503 is known. Here, as examples of long-chain acyl groups, there are C_8 - C_{22} saturated or unsaturated, straight or branched aliphatic acyl groups, specifically 2-ethylhexanoyl, caproyl, lauroyl, myristoyl, palmitoyl, stearoyl and cocoyl. Moreover, as disclosed in JP-B-1050201, metal salts of N-acyl amino acids, and in particular salts of Al, Mg, Ca, Zn, Zr, Ti or the like can also be suitably used. Here, as examples thereof, there are salts of N-acyl-N-methylglycine, N-acyl-N-. -alanine, N-acyl-N-glutamic acid or the like. Since these acylated amino acids are less oil-repellent than the above-mentioned treatment by fluorine compounds, the above-described compounds containing perfluoroalkyl groups are more preferable as water-repellent oil-repellent agents in the present invention.

[0021] The above-described surface treatment of the pigment and/or filler can be performed by any method, and can be performed by physical adsorption of compounds onto the pigment and/or filler surface, chemical bonding with functional groups on the pigment and/or filler surface, or physical methods such as mechanofusion. In particular, surface treatment by perfluoroalkyl phosphate-diethanolamine salts has conventionally been performed by adding water thereto and stirring, then mixing this into a slurry formed by adding water to the pigment and/or filler to form an emulsion, then heating as needed and letting stand to destroy the emulsion, and finally cleansing, filtering and drying. Additionally, surface treatment by perfluoroalkyl silane is usually performed by activating the surface of the pigment and/or filler by a plasma treatment, heat treatment or hydrothermal treatment, then baking the perfluoroalkyl silane at above its melting point.

[0022] The above-described surface-treated pigment and/or filler contained in the gel composition of the present invention is contained in the composition in an amount of preferably 0.1-30 wt%, more preferably 0.5-10 wt%.

[0023] While the pigments and/or fillers contained in the gel composition of the present invention are basically those which have been surface-treated as described above, untreated pigments and/or fillers can be added as long as the amount is within a range such as to retain the effects such as pigment and/or filler dispersibility and uniformity of the gel compositions of the present invention. The amount of untreated pigment and/or filler capable of being contained in the gel composition is preferably 5 wt% at maximum.

[0024] The gelling agent used in the present invention preferably contains a polyacrylamide-based polymer in an amount of 1.0-80.0 wt% with respect to the entire weight of the gelling agent. This polyacrylamide-based polymer can, for example, have a molecular weight of approximately 1000-1,000,000. Additionally, the polyacrylamide polymer can, aside from being polyacrylamide itself, be a derivative thereof, or can be a mixture of a plurality of types of polymers, or can be a copolymer with acrylamide or its derivatives as monomers.

[0025] Additionally, the above-mentioned gelling agent should preferably contain a hydrocarbon and/or non-ionic surfactant in addition to the polyacrylamide-based polymer. As the hydrocarbon, it is possible to use various types, for example isoparaffin, petrolatum, ceresin and squalane, but C_4 - C_{20} isoparaffins are most suitable for use. The content of the hydrocarbon should preferably be 1.0-60.0 wt% of the gelling agent.

[0026] Additionally, the non-ionic surfactant may be of any type, but polyoxyethylene alkyl (C_{12}-C_{14}) ethers or polyoxyethylene sorbitan fatty acid esters are particularly favorable. The content of the non-ionic surfactant should preferably be 0.1-20.0 wt% of the gelling agent.

[0027] As a gelling agent which satisfies suitable conditions as described above, there are those marketed by Seppic under the trade names Sepigel 305, Sepigel 501, Sepigel 600, etc., of which Sepigel 305 which is a mixture containing approximately 40% polyacrylamide, approximately 24% C_{13}-C_{14} isoparaffin and approximately 6% Laureth-7 (here, Laureth-7 is a non-ionic surfactant having the formula $C_{12}H_{25}$-$(OCH_2CH_2)_n$-OH) is particularly preferable, and Sepigel

600 which is a mixture of a polyacrylamide/acrylamide-2-propane sulfonate copolymer, isohexadecane and polysorbate 80 (polyoxyethylene sorbitan mono-oleate (20 EO)) can be used favorably.

[0028] A suitable gelling agent comprising a polyacrylamide-based polymer which can be used in accordance with the present invention is for example disclosed in EP 0 503 853 (Scott Bader Company Ltd.).

[0029] The above-described gelling agent should preferably be contained in the gel composition in an amount of 0.1-10 wt%, more preferably 0.1-5 wt%.

[0030] While non-ionic surfactants can be favorably included in the above-mentioned gelling agent as mentioned above, the gel composition according to the present invention should preferably not contain surfactants other than the surfactants which are purposefully included in the gel composition.

[0031] The gel composition according to the present invention is preferably an aqueous gel, containing absolutely no oils or only a small amount of oils (a maximum of 10 wt%), and more preferably contains aqueous constituents in an amount exceeding at least 50 wt%. This type of aqueous gel composition has an abundant sense of refreshment, has a fresh feel of use, and is particularly suited to formulation of cosmetic compositions for summer use or for use on oily skin.

[0032] In another mode of the present invention, a cosmetic composition or external agent for skin composed of-the above-described gel composition or comprising the above-described gel composition is offered. The cosmetic composition or the external agent for skin may further comprise a cosmetically acceptable medium or a dermatologically acceptable medium, respectively.

[0033] The cosmetic composition in accordance with the invention can have any mode of use, but cosmetic compositions for makeup, sun care, skin care and hair care are most favorable. The cosmetic compositions for the make-up can be those for the makeup of the body skin such as face, lips, eyes and so on, and also of the body hair growths such as nails, hair and so on.

[0034] Furthermore, the cosmetic composition in accordance with the invention can take the form of a foundation, a lip product, a blush, an eye-shadow, an eyeliner, a concealer, a mascara, a nail enamel and so on.

[0035] This cosmetic composition or external agent for skin may contain additives such as the usual active ingredients which are contained in cosmetic products or external skin products.

[0036] As examples of additives capable of being contained in the cosmetic composition or external agent for skin according to the present invention, there are organic solvents, softening agents, anti-oxidants, anti-free radical agents, opacifiers, stabilizers, emollients, defoaming agents, humectants, vitamins, fragrances, preservatives, sequestering agents, polymers aside from the above-described gelling agents, basic or acidic agents, dyes, self-tanning agents, and conventional cosmetic and/or dermatological adjuvants selected from among any other ingredients which are normally used in the field of cosmetic and/or dermatology.

[0037] The types and/or amounts of the ingredients added in this way can be selected by a person skilled in the art with care such as not to have a detrimental effect on the advantageous properties specific to the gel composition of the present invention.

[0038] Herebelow, the present invention shall be explained in detail by means of examples, but it should be recognized that the present invention is not restricted by these examples in any way. In the following notation, % indicates wt% unless another definition is given.

Example 1

[0039] In order to confirm the effects of the combination of a surface-treated pigment and/or filler and gelling agent used in the gel composition according to the present invention, a pigment treated with silicone and an untreated pigment were prepared aside from the surface-treated pigment of the present invention. Additionally, aside from the polyacrylamide-based gelling agent of the present invention, a carboxyvinyl polymer and acrylate/C_{10} - C_{30} alkyl acrylate crosslinked polymer which are commonly used water-soluble polymer gelling agents were employed aside from the polyacrylamide-based gelling agent of the present invention, and gel compositions 1-5 were formulated according to the possible combinations thereof.

[0040] Then, in order to evaluate the texture and stability of gel compositions 1-5, the appearance and uniformity were compared, and the stability was studied after storage for 2 months at 45 °C. Furthermore, in order to evaluate the lasting effects and sense of application, tests were performed on the ease of application to the skin, sense of refreshment, sense of coolness, cosmetic stay and pleasantness with respect to female panelists.

[0041] The results of the above-described test are shown in the following table.

Table 1

Gel Composition	1	2	3	4	5
Polyacrylamide-based polymer *	+			+	+
Carboxyvinyl polymer		+			
Acrylate-based cross-linked polymer**			+		
Perfluoroalkyl phosphate treated pigment	+	+	+		
Untreated pigment				+	
Silicone-treated pigment					+
Texture/Stability	very good	poor	poor	good	good
Lasting/Sense of application	good	good	good	poor	fair

In the above table, "+" indicates that the gel composition contains that ingredient. Additionally,
"*" indicates Sepigel 305 and
"**" indicates an acrylate/C_{10} - C_{30} alkyl acrylate cross-linked polymer.

[0042] From the results shown in the above table, it can be seen that the gel composition 1 obtained by combining a surface-treated pigment and a gelling composition in accordance with the present invention excels in both texture/stability and lasting/sense of application in comparison to the gel compositions 2-5 due to other combinations.

Example 2

[0043] Gel compositions according to the present invention containing the following various compositions were prepared.

[Gel Foundation]

[0044]

- Glycerin 10%
- Preservative 2%
- Sepigel 305 2%
- Perfluoroalkyl sulfonate treated pigment 9%
- Cyclopentasiloxan 15%
- Tocopheryl acetate 0.5%
- Purified water balance

[Sun Care Gel]

[0045]

- Glycerin 5%
- Preservative 2%
- Sepigel 305 2%
- Perfluoroalkyl phosphate treated pigment 9%
- UV absorbent 1%
- Cyclopentasiloxane 15%
- Tocopheryl acetate 0.5%
- Purified water balance

[Gel Foundation]

[0046]

- Glycerin 2%

- Preservative 0.8%
- Sepigel 305 2%
- Cyclopentasiloxane 12%
- Tocopheryl acetate 0.5%
- Cyclopentasiloxane/dimethiconol 0.5%
- Biosaccharide gum-1 2%
- Acylated amino acid salt treated pigment*** 9%
- Purified water balance

[Gel Foundation]

[0047]

- Glycerin 2%
- Preservative 0.8%
- Sepigel 305 2%
- Cyclopentasiloxane 12%
- Tocopheryl acetate 0.5%
- Cyclopentasiloxane/dimethiconol 0.5%
- Biosaccharide gum-1 2%
- Perfluoroalkylsilane treated pigment**** 7%
- Untreated pigment 2%
- Purified water balance

[Gel Foundation]

[0048]

- Glycerin 2%
- Preservative 0.8%
- Sepigel 600 2%
- Cyclopentasiloxane 12%
- Tocopheryl acetate 0.5%
- Cyclopentasiloxane/dimethiconol 0.5%
- Biosaccharide gum-1 2%
- C_{9-15} fluoroalcohol phosphate treated pigment 9%
- Purified water balance

[0049] The above-described given gel compositions all had stable and uniformly dispersed pigments.

Example 3

[0050] The following gel foundation A was further formulated as a gel composition of the present invention, and a comparison test was performed with regard to practical properties with a gel foundation by Company K.

[Gel Foundation A]

[0051]

- Glycerin 2%
- Preservative 0.8%
- Sepigel 305 2 %
- Cyclopentasiloxane 12%
- Tocopheryl acetate 0.5%
- Cyclopentasiloxane/dimethiconol 0.5%
- C_{9-15}fluoroalcohol phosphate treated titanium dioxide 6.21%

(***) Sodium N-acyl-L-glutamate was used as an acylated amino acid salt.
(****) $CF_3(CF_2)_7CH_2CH_2$-$Si(OCH_3)_3$ was used as the perfluoroalkylsilane.

- C_{9-15}fluoroalcohol phosphate treated yellow iron oxide 0.51%
- C_{9-15}fluoroalcohol phosphate treated red iron oxide 0.18%
- C_{9-15}fluoroalcohol phosphate treated black iron oxide 0.1%
- Biosaccharide gum-1 2%
- Purified water balance

[0052] The present test was performed by handing 11 unasked female panelists two types of products and having them evaluating the practical properties. That is, each panelist took each product in hand to evaluate the fluidity and touch, then applied separate products on the right-and left sides of their faces to evaluate the texture, state of application, uniformity and cosmetic finish of each product.

[0053] As a result of the above-described comparison tests, both products had fluidity and slight oiliness when taken into the hand, but this sensation was slightly stronger in the foundation A of the present invention which has a wet feeling. Perhaps due to this wet effect, with regard to the applicability, the foundation A of the present invention had good smoothness and spread and was easy to apply, while the gel foundation of company K dried quickly, did not slide, and had a tendency to become fluffy.

[0054] Additionally, while the foundation A of the present invention could easily be spread uniformly over the skin, a large amount of the gel foundation of Company K was required in order to be able to apply uniformly over the entire face without feeling any friction.

[0055] Furthermore, the sense of use was extremely good during application and after application in the case of the gel foundation A of the present invention, but the comparison product had 7 subjects experiencing discomfort during application (dryness, catching, irritation), and 3 subjects experiencing discomfort even after application (pulling, irritation).

[0056] Additionally, with regard to the cosmetic finish, the gel foundation A of the present invention was evaluated as having excellent coverage (8 out of 11 subjects), being uniform (6 out of 11 subjects) and matted (7 out of 11 subjects).

[0057] Furthermore, the gel foundation excelled with regard to fixing/blotting of blotches and freckles, while the comparison product was evaluated as making hairs and pores more conspicuous.

[0058] In this way, the gel foundation A of the present invention was found to excel over the commercially available product from Company K with regard to texture, applicability, uniformity, sense of use and cosmetic finish.

Example 4

[0059] As in Example 3, a gel foundation B of the following composition was further prepared as a gel composition of the present Invention, and a practical property test was performed in comparison with the same gel foundation of Company K which was evaluated in Example 3.

[Gel Foundation B]

[0060]

- Glycerin 2%
- Preservative 0.8%
- Sepigel 305 2%
- Cyclopentasiloxane 12%
- Tocopheryl acetate 0.5%
- Cyclopentasiloxane/dimethiconol 0.5%
- C_{9-15}fluoroalcohol phosphate treated titanium dioxide 5.21%
- C_{9-15}fluoroalcohol phosphate treated yellow iron oxide 0.51%
- C_{9-15}fluoroalcohol phosphate treated red iron oxide 0.18%
- C_{9-15}fluoroalcohol phosphate treated black iron oxide 0.1%
- Perfluoroalkylethyl phosphate treated titanium nano-oxide (rutile type) (average size 50 nm; CI 77891) 3%
- Biosaccharide gum-1 2%
- Purified water balance

[0061] The practical properties were evaluated by 11 female panelists as in Example 3. As a result of the above-described comparison tests, both products had fluidity and slight oiliness when taken into the hand, but this sensation was slightly stronger in the foundation B of the present invention which has a wet feeling. Consequently, with regard to the applicability, the foundation B of the present invention had good smoothness and spread and was easy to apply, while the gel foundation of company K dried quickly, did not slide, and had a tendency to become fluffy.

[0062] Additionally, while the foundation B of the present invention could easily be spread uniformly over the skin, a large amount of the gel foundation of Company K was required in order to be able to apply uniformly over the entire face without feeling any friction.

[0063] Furthermore, the sense of use was extremely good during application and after application in the case of the gel foundation B of the present invention, but the comparison product had 2 subjects experiencing dryness and catching during application and experiencing pulling after application.

[0064] Additionally, with regard to the cosmetic finish, the gel foundation B of the present invention was evaluated as having excellent coverage (6 out of 11 subjects), being uniform (6 out of 11 subjects) and matted (3 out of 11 subjects).

[0065] Furthermore, the gel foundation excelled with regard to fixing/blotting of blotches and freckles, while the comparison product was evaluated as making hairs and pores more conspicuous.

[0066] In this way, the gel foundation B of the present invention was found to excel over the commercially available product from Company K with regard to texture, applicability, uniformity, sense of use and cosmetic finish.

Claims

1. A gel composition **characterised in that** it comprises a pigment and/or filler which has been surface-treated with a water-repellent oil-repellent agent, and a gelling agent comprising a polyacrylamide-based polymer.

2. A gel composition according to claim 1, wherein said water-repellent oil-repellent agent is a fluorine compound or an amino acid compound.

3. A gel composition according to claim 2, wherein said fluorine compound is a compound having a perfluoroalkyl group.

4. A gel composition according to claim 2 or claim 3, wherein said fluorine compound is a perfluoroalkyl phosphate or a perfluoroalkyl silane.

5. A gel composition according to claim 2, wherein said amino acid compound is a long-chain acylated amino acid or its salt.

6. A gel composition according to any one of claims 1 to 5, wherein said gelling agent further contains a hydrocarbon and/or a non-ionic surfactant.

7. A gel composition according to any one of claims 1 to 6, wherein the polyacrylamide-based polymer is polyacrylamide.

8. A gel composition according to any one of claims 1 to 6, wherein the polyacrylamide-based polymer is a copolymer of acrylamide/acrylamide-2-methylpropane-sulfonate.

9. A gel composition according to any one of claims 6 to 8, **characterised by** not containing any other surfactants aside from the surfactant contained in said gelling agent.

10. A gel composition according to claims 1 to 9, wherein said pigment and/or filler which has been surface-treated is contained in an amount of 0.1-20 wt% of the composition.

11. A gel composition according to claim 10, wherein said pigment and/or filler which has been surface-treated is contained in an amount of 0.5-10 wt% of the composition.

12. A gel composition according to any one of claims 1 to 11, which further comprises a pigment and/or filler which has not been surface-treated in a maximum amount of 5 wt%.

13. A gel composition according to any one of claims 1 to 12, wherein the gelling agent is contained in an amount of 0.1-10 wt% of the composition.

14. A gel composition according to claim 13, wherein the gelling agent is contained in an amount of 0.1-5 wt%.

15. A gel composition according to any one of claims 1 to 14, which contains aqueous constituents in an amount

exceeding 50 wt% of the compositions.

16. A cosmetic composition composed of or comprising a gel composition as defined in any one of claims 1 to 15.

17. A cosmetic composition according to claim 16, having a use selected from the group consisting of makeup, sun care, skin care and hair care.

18. An external agent for skin composed of or comprising a gel composition as defined in any one of claims 1 to 15.

19. A process for stabilising a gel composition, comprising the step of adding to said gel composition a pigment and/or filler which has been surface-treated by a water-repellent oil-repellent agent and a gelling agent comprising a polyacrylamide-based polymer.

20. Use of the combination of a pigment and/or filler which has been surface-treated by a water-repellent oil-repellent agent and a gelling agent comprising a polyacrylamide-based polymer for stabilising a gel composition.

Patentansprüche

1. Gelzusammensetzung, **dadurch gekennzeichnet, dass** sie ein Pigment und/oder ein Füllmittel, welches mit einem wasser- und ölabstoßenden Mittel oberflächenbehandelt wurde, und einen Gelbildner, umfassend ein Polymer auf Polyacrylamid-Basis, enthält.

2. Gelzusammensetzung nach Anspruch 1, wobei das wasser- und ölabstoßende Mittel eine Fluorverbindung oder eine Aminosäureverbindung ist.

3. Gelzusammensetzung nach Anspruch 2, wobei die Fluorverbindung eine Verbindung mit einer Perfluoralkylgruppe ist.

4. Gelzusammensetzung nach Anspruch 2 oder Anspruch 3, wobei die Fluorverbindung ein Perfluoralkylphosphat oder ein Perfluoralkylsilan ist.

5. Gelzusammensetzung nach Anspruch 2, wobei die Aminosäureverbindung eine langkettige acylierte Aminosäure oder deren Salz ist.

6. Gelzusammensetzung nach einem der Ansprüche 1 bis 5, wobei der Gelbildner außerdem einen Kohlenwasserstoff und/oder ein nicht-ionisches grenzflächenaktives Mittel enthält.

7. Gelzusammensetzung nach einem der Ansprüche 1 bis 6, wobei das Polymer auf Polyacrylamid-Basis Polyacrylamid ist.

8. Gelzusammensetzung nach einem der Ansprüche 1 bis 6, wobei das Polymer auf Polyacrylamid-Basis ein Copolymer von Acrylamid/Acrylamid-2-methylpropansulfonat ist.

9. Gelzusammensetzung nach einem der Ansprüche 6 bis 8, **dadurch gekennzeichnet, dass** sie keinelei andere grenzflächenaktive Mittel enthält außer dem in dem Gelbildner enthaltenen grenzflächenaktiven Mittel.

10. Gelzusammensetzung nach einem der Ansprüche 1 bis 9, wobei das Pigment und/oder Füllmittel, welches oberflächenbehandelt wurde, in einer Menge von 0,1-20 Gew.-% der Zusammensetzung enthalten ist.

11. Gelzusammensetzung nach Anspruch 10, wobei das Pigment und/oder Füllmittel, welches oberflächenbehandelt wurde, in einer Menge von 0,5-10 Gew.-% der Zusammensetzung enthalten ist.

12. Gelzusammensetzung nach einem der Ansprüche 1 bis 11, welche außerdem ein Pigment und/oder Füllmittel, welches nicht oberflächenbehandelt wurde, in einer Maximalmenge von 5 Gew.-% umfasst.

13. Gelzusammensetzung nach einem der Ansprüche 1 bis 12, wobei der Gelbildner in einer Menge von 0,1-10 Gew.-% der Zusammensetzung enthalten ist.

14. Gelzusammensetzung nach Anspruch 13, wobei der Gelbildner in einer Menge von 0,1-5 Gew.-% enthalten ist.

15. Gelzusammensetzung nach einem der Ansprüche 1 bis 14, welche wässrige Bestandteile in einer Menge von über 50 Gew.-% der Zusammensetzung enthält.

16. Kosmetikzusammensetzung, bestehend aus oder umfassend eine Gelzusammensetzung, wie in jedem der Ansprüche 1 bis 15 definiert.

17. Kosmetikzusammensetzung nach Anspruch 16, mit einer Anwendung, gewählt aus der Gruppe, bestehend aus Makeup, Sonnenpflege, Hautpflege und Haarpflege.

18. Äußerlich anzuwendendes Hautmittel, bestehend aus oder umfassend eine Gelzusammensetzung, wie in jedem der Ansprüche 1 bis 15 definiert.

19. Verfahren zum Stabilisieren einer Gelzusammensetzung, umfassend den Schritt des Zugebens zu der Gelzusammensetzung ein Pigment und/oder ein Füllmittel, welches durch ein wasser- und ölabstoßendes Mittel oberflächenbehandelt wurde, und einen Gelbildner, umfassend ein Polymer auf Polyacrylamid-Basis.

20. Verwendung der Kombination aus einem Pigment und/oder Füllmittel, welches durch ein wasser- und ölabstoßendes Mittel oberflächenbehandelt wurde, und einem Gelbildner, umfassend ein Polymer auf Polyacrylamid-Basis, zur Stabilisierung einer Gelzusammensetzung.

Revendications

1. Composition de gel **caractérisée en ce qu'**elle comprend un pigment et/ou une charge qui a subi un traitement de surface avec un agent hydrofuge oléofuge, et un agent gélifiant comprenant un polymère à base de polyacrylamide.

2. Composition de gel selon la revendication 1, dans laquelle ledit agent hydrofuge oléofuge est un composé du fluor ou un composé d'acide aminé.

3. Composition de gel selon la revendication 2, dans laquelle ledit composé du fluor est un composé ayant un groupe perfluoroalkyle.

4. Composition de gel selon la revendication 2 ou la revendication 3, dans laquelle ledit composé du fluor est un phosphate de perfluoroalkyle ou un perfluoroalkylsilane.

5. Composition de gel selon la revendication 2, dans laquelle ledit composé d'acide aminé est un acide aminé acylé à longue chaîne ou son sel.

6. Composition de gel selon l'une quelconque des revendications 1 à 5, dans laquelle ledit agent gélifiant contient en outre un hydrocarbure et/ou un agent tensioactif non ionique.

7. Composition de gel selon l'une quelconque des revendications 1 à 6, dans laquelle le polymère à base de polyacrylamide est du polyacrylamide.

8. Composition de gel selon l'une quelconque des revendications 1 à 6, dans laquelle le polymère à base de polyacrylamide est un copolymère acrylamide/acrylamide-2-méthylpropane-sulfonate.

9. Composition de gel selon l'une quelconque des revendications 6 à 8, **caractérisée en ce qu'**elle ne contient aucun autre agent tensioactif à part l'agent tensioactif contenu dans ledit agent gélifiant.

10. Composition de gel selon l'une quelconque des revendications 1 à 9, dans laquelle ledit pigment et/ou ladite charge qui a subi un traitement de surface est contenu en une quantité de 0,1 à 20 % en poids de la composition.

11. Composition de gel selon la revendication 10, dans laquelle ledit pigment et/ou ladite charge qui a subi un traitement de surface est contenu en une quantité de 0,5 à 10 % en poids de la composition.

12. Composition de gel selon l'une quelconque des revendications 1 à 11, qui comprend en outre un pigment et/ou une charge qui n'a pas subi de traitement de surface en une quantité maximum de 5 % en poids.

13. Composition de gel selon l'une quelconque des revendications 1 à 12, dans laquelle l'agent gélifiant est contenu en une quantité de 0,1 à 10 % en poids de la composition.

14. Composition de gel selon la revendication 13, dans laquelle l'agent gélifiant est contenu en une quantité de 0,1 à 5 % en poids.

15. Composition de gel selon l'une quelconque des revendications 1 à 14, qui contient des constituants aqueux en une quantité supérieure à 50 % en poids de la composition.

16. Composition cosmétique composée de ou comprenant une composition de gel telle que définie dans l'une quelconque des revendications 1 à 15.

17. Composition cosmétique selon la revendication 16, ayant une utilisation choisie dans le groupe constitué par des utilisations comme produit de maquillage, produit solaire, produit de soin pour la peau et produit de soin pour les cheveux.

18. Agent externe pour la peau composé de ou comprenant une composition de gel telle que définie dans l'une quelconque des revendications 1 à 15.

19. Procédé pour stabiliser une composition de gel, comprenant l'étape consistant à ajouter à ladite composition de gel un pigment et/ou une charge qui a subi un traitement de surface par un agent hydrofuge oléofuge et un agent gélifiant comprenant un polymère à base de polyacrylamide.

20. Utilisation de la combinaison d'un pigment et/ou d'une charge qui a subi un traitement de surface par un agent hydrofuge oléofuge et un agent gélifiant comprenant un polymère à base de polyacrylamide pour stabiliser une composition de gel.